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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/601,004	09/11/2000	Kazuo Toraichi	A-371	4200
802	7590	04/20/2004	EXAMINER	
DELLETT AND WALTERS P. O. BOX 2786 PORTLAND, OR 97208-2786			DO, CHAT C	
			ART UNIT	PAPER NUMBER
			2124	11

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

File

## Office Action Summary

Application

09/601,004

Applicant(s)

TORAICHI ET AL.

Examiner

Chat C. Do

Art Unit

2124

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6 and 8 is/are pending in the application.
- 4a) Of the above claim(s) 5, 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6 and 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This communication is responsive to Election, filed 02/26/04.
2. Claims 1-8 are pending in this application. Claims 1 and 6-8 are independent claims. In Election, claims 1-4, 6, and 8 are elected for examining and claims 5 and 7 are non-elected. This action is made final.

#### *Election/Restrictions*

3. This application contains claims directed to the following patentably distinct species of the claimed invention:
  - a. Species I: claims 2-4 and 6, direct to a two variable data interpolation system using a sampling function  $H(t)$  defined as  $-F(t+.5)/4 + F(t) - F(t-.5)/4$ .
  - b. Species II: claims 5 and 7, direct to a two variable data interpolation system using a sampling function  $H(t)$  defined as a series of expressions in claims 5 and 7.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 1 and 8 generic.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

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4. Applicant's election without traverse of Species I in Paper No. 10 filed 02/26/04 is acknowledged.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-4, 6, and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re claim 1, the limitation "values of a local support" in lines 6-7 is unclear to the extent that no reasonable interpretation can be given for examination purposes. For examination purposes, the examiner considers the sampling function has values of a local support means its has zero value toward +/- infinity. Claims 6 and 8 have the same problem.

Thus, claim 2-4 are also rejected for being dependent on the rejected base claim 1.

***Claim Rejections - 35 USC § 101***

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 1-4 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-4 clearly recite a system for calculating the approximation data by interpolation according to a mathematic algorithm. In order for such a claimed system to be statutory, the claims must include either a step, means, or process that results in a physical transformation outside the computer or a limitation to a practical application. However, it is clear from the claims that the claims merely recite step or non-specific means or process for data computation and manipulation in performing a mathematical function in a generic computer. The inputs are numbers and outputs are also numbers. The claims fail to recite any step or means that results in a physical transformation outside the computer, that includes a limitation to a practical application, or that requires a specific computer system or components to implement the claimed process. Therefore, claims 1-4 are clearly directed to a non-statutory subject matter.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-4, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Masaru et al. ("A Smooth Signal Generator Based on Quadratic B-Spline Function").

Re claim 1, Masaru et al. discloses a two variable data interpolation system (Introduction section lines 16-18 page 1252 and Preliminaries section lines 1-5 page 1252) wherein a value between a plurality of discrete data is interpolated

by performing convolution operation (equations 1-6 page 1252) corresponding to the plurality of discrete data positioned at equal intervals in a two-dimensional space (Preliminaries section lines 1-7 page 1252) using a sampling function that can be differentiated finite times and has values of a local support (Figure 1 and left column lines 1-4 page 1253).

Re claim 2, Masaru et al. further discloses the sampling function is a function that can be differentiated only once over the whole region (Figure 1 and equations 17-18).

Re claim 3, Masaru et al. further discloses the sampling functions is defined as  $H(t) = -F(t+.5)/4 + F(t) - F(t-.5)/4$  (equation 1 the summation function).

Re claim 4, Masaru et al. further discloses the third order B spline function  $F(t)$  is expressed as in page 17 lines 4-6 of application (equation 2).

Re claim 6, Masaru et al. further discloses the two variable data interpolation system comprising a discrete data extracting unit (Introduction section lines 1-10 page 1252) for extracting a plurality of discrete data that exist within a predetermined range around a data interpolating position that becomes an object of interpolation operation; sampling function operating unit (Preliminaries section) for calculating a value of the sampling function  $H(t)$  for each of a plurality of discrete data extracted in this manner, with letting distance between the data interpolating position and discrete data be  $t$ ; and convolution operating unit (equations 4-5) for obtaining a value of the data interpolating position by performing convolution operating though adding values of the sampling function

that are calculated by the sampling function operating unit and correspond to the plurality of discrete data respectively.

Re claim 8, it has similar limitations cited in claim 6. Thus, claim 8 is also rejected under same rationale in the rejection of rejected claim 6.

### ***Response to Arguments***

11. Applicant's arguments filed 02/26/2004 have been fully considered but they are not persuasive.

c. The applicant argues in page 14 first paragraph for claims 1-7 under 112 rejection that the "values of a local support" is sufficiently supported in the specification.

The examiner respectfully submits that the applicant neither point-out particular lines in the specification to support the values of a local support nor the applicant explains in the remark. The examiner considers the "values of a local support" sampling function as a function seen in Figure 4 with  $H(z) = 0$  when  $|z| \geq 2$ .

d. The applicant argues in page 16 that the cited document 1 the sampling function has no values of a local support.

The examiner respectfully submits that the cited document 1 by Masaru et al. disclose in equations 2 and 3. These two functions  $\psi_1$  and  $\psi_k$  have values of a local support because  $\psi_1$  is zero elsewhere in equation 1 and  $\psi_k$  also equals to zero since  $\psi_k$  is summation product of  $\psi_1$ .

- e. The applicant argues in page 17 that the sampling function in the cited reference has almost same shape as shown in Figure 3 of the present invention but the sampling function in the citation exists in the range infinity.

The examiner respectfully submits that the Figure 1 of the cited reference clearly discloses a sampling function as seen in Figure 3 of present invention wherein  $t_2$  is equal to 2. In addition, the sampling function in Figure 1 is mathematically expressed in Equations 2-3 of the first page.

- f. The applicant cites in page 15 that adding the computer to perform the function in claims would over come the rejection under 101.

The examiner respectfully submits that previous rejection under 101 is clearly recited that the claims fail to recite any step or means that results in a physical transformation outside the computer, that includes a limitation to a practical application, or that requires a specific computer system to implement the claimed process. By inserting a generic computer to perform the function, it would not overcome the rejection. It must either include limitation(s) to a practical application or require specific computer step(s), process(s), or system(s) to perform the function.

### ***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (703) 305-5655. The examiner can normally be reached on M => F from 7:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaki Kakali can be reached on (703) 305-9662. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

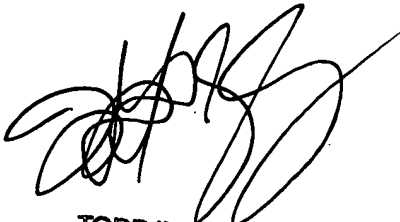
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Chat C. Do  
Examiner

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April 7, 2004



TODD INGBERG  
PRIMARY EXAMINER